In the Specification:

Please amend the following paragraphs:

[0003] It is [[an]] important for a diesel engine to decrease such things as particulate matter (hereinafter referred to as PM), nitrogen oxide (NOx) and hydrocarbon (HC) [[HC]] contained in an exhaust gas. Various types of exhaust purification devices have been proposed in order to decrease such substances.

[0005] However, these exhaust purification devices with such continuation reproduction type DPF which utilize catalytic action do not provide satisfying results in the exhaust gas purification unless the exhaust gas temperature is at activation temperature (for example; 250 degrees C or more) for the catalyst.

[0041] On the other hand, when the exhaust gas temperature is relatively low, such as when the engine E has just started or when the vehicle is driven with a light load, and the exhaust gas temperature detected by the sensor 34 is lower than the activation temperature of the catalyst in the catalyst filter 32 of the exhaust purification device 30, the controller 12 performs the exhaust gas temperature rise control. That is, while determining the basic fuel injection timing of the main fuel injection and the preceding fuel injection in accordance with the basic fuel injection map based on the actual engine rotational speed detected by the engine rotation sensor 16 and the actual accelerator opening degree detected by the accelerator opening sensor 17, the retardation period of the fuel injection timing of the main injection and the preceding fuel injection is also determined in accordance with retardation period map which will be described later. The retarded fuel injection timing for the preceding fuel injection and the main fuel injection are determined by adding the retardation amount to the basic fuel injection timing. Moreover, the increased amount of the fuel injection of the main fuel injection and the preceding fuel injection is determined in reference to the increased amount of the fuel injection map which will be described later. Although this proceess [[more]] will be explained in greater detail later, the increased amounts of the fuel injection of the main fuel injection and the preceding fuel injection determined by reference to the increased fuel

injection amount map are larger than the amount of the basic fuel injection determined by reference to the basic fuel injection map under the same engine rotational speed and the accelerator opening degree. The controller 12 then outputs a driving signal to each fuel injector 6 based on the retarded fuel injection timing and the increased amount of the fuel injection.

[0046] First, appropriate retardation periods to be given [[to be]] to various basic fuel injection timing are prepared by experiments and tests beforehand based on various rotational speeds and the loads (mainly determined by an accelerator opening degrees) of the engine E, and these retardation periods are inputted into the controller 12 in the form of an retardation period map beforehand. When the exhaust gas temperature rise control is performed, the retardation period is determined by the retardation period map from the actual engine rotational speed detected by the engine rotational sensor 16 and the actual accelerator opening degree detected by the accelerator opening degree sensor 17. In the meantime, basic fuel injection is determined by the basic fuel injection timing map. Then, the fuel injection timing is determined by adding the retardation period to the basic fuel injection timing.

[0048] Appropriately increased amounts of the fuel injection which are greater than the corresponding basic amounts of the fuel injection for the various [[the]] rotational speeds and [[the]] loads of the engine E are obtained from experiment results, and the increased amounts of the fuel injection are inputted into the controller 12 in the form of an increased fuel injection map beforehand. When the exhaust gas temperature rise control is performed, the increased amount of the fuel injection is determined by the increased fuel injection map based on the actual engine rotational speed detected by the engine rotational sensor 16 and the actual accelerator opening degree detected by the engine accelerator opening degree sensor 17.

[0052] An example will be described in reference to Figure 5. In Figure 5, the horizontal axis shows a total amount of the fuel injection obtained by adding the amount of the main fuel injection to the amount of the preceding fuel injection,

and the vertical axis shows the torque output of the crankshaft of the engine E. The line A shows the torque output [[of]] when the fuel injection is carried out at the normal fuel injection timing (the basic fuel injection timing), and the line B shows the torque output [[of]] when the fuel injection timing is retarded for a predetermined period from the basic fuel injection timing.

[0053] It is supposed that a vehicle is in a condition C in which the exhaust gas temperature rise control (retardation of the fuel injection timing) is not performed. Under [[the]] <u>this</u> condition, the amount of the fuel injection is Q1, and the torque output of the engine E is P1. When fuel injection timing is retarded in order to raise the exhaust gas temperature, the amount of the fuel injection is increased up to the point Q2 where the torque output obtained is equal to the torque output P1 of the normal fuel injection timing. That is, the added amount of fuel is obtained from the equation of Q2-Q1(subtracting Q1 from Q2). By means of this, the occurrence of the torque fluctuation caused before and after performing exhaust gas temperature rise control can be avoided. The values of the increased amount of the fuel injection Qgain with which a torque output fluctuation is not generated when exhaust gas temperature rise control is performed, are prepared by testing beforehand under various operational conditions, and the increased fuel injection map M2 as shown in Figure 4 is prepared.

[0058] Use of the sensor 34 is [[not dispensable]] <u>not required</u> to detect the temperature of the exhaust gas which passes through the exhaust purification device 30. For instance, it is possible to calculate the temperature from a rotational speed, load condition, etc. of engine E.

[0060] In summary, the present invention displays [[an]] excellent effects by which the exhaust gas temperature can be raised in order to maintain the purification of the exhaust purification device and a fluctuation of torque output does not occur when the exhaust gas temperature is raised.